

REMARKS:

Reconsideration of this application, as amended, is respectfully requested.

Claims 1, 4, 13, 14, and 19 have been amended. These amendments are supported by the specification as filed, for example, at Figures 2 and 3 and paragraphs 30, 31, 34, and 35 thus, no new matter has been added.

Amended claim 1 is patentable over Todokoro, et al., (U.S. 6,084,238, hereinafter "Todokoro I) in view of Adamec (U.S. 7,045,781, hereinafter "Adamec"), and further in view of Ose (U.S. 6,787,772, hereinafter "Ose") at least because the cited prior art fails to teach or suggest detecting a first portion of produced high-energy electrons by multiple in-lens detectors, directing a trajectory of produced low-energy electrons and a second portion of the produced high-energy electrons towards an inner lens detector assembly and detecting directed low-energy electrons and a second portion of high-energy electrons by an inner lens assembly as required by claim 1.

Todokoro I discloses an upper detector and a lower detector wherein "secondary electrons or the reflected electrons which have passed through the central hole of the target plate of the lower detector can be detected by the upper detector." *Todokoro I*, column 8, lines 35 – 38.

"Since the secondary signal which is detected by the upper detector 33 contains a large number of secondary electrons and reflected electrons which have been emitted from the sample 12 perpendicularly thereto, an image can be obtained which is different in the contrast from that in the lower detector 34. For example, in the inspection of the contact holes in the process of manufacturing a semiconductor device, if the lower detector 34 is used, an image having a contact hole image portion which is emphasized from the periphery thereof can be obtained, while if the upper detector 33 is used, the detailed image of the bottom of the contact hole can be obtained. In addition, the contrast in which the features of the sample is emphasized can be formed by calculating the signals output from the detectors 33 and 34, respectively." *Id.*, column 8, lines 38-52.

Thus, both the upper and lower detectors of Todokoro I detect secondary electrons. However, Todokoro I fails to disclose any distinction between the detection of high-energy and low-energy electrons. Furthermore, Todokoro I fails to teach or suggest directing a trajectory of the produced low-energy electrons and a second portion of the produced high-energy electrons towards an inner lens detector assembly and detecting directed low-energy electrons and a second portion of high-energy electrons by the inner lens assembly as required by claim 1.

Adamec discloses the deflection of a primary electron beam and provides a sectorized detector "for detecting secondary electrons emitted from a sample." *Adamec*, column 8, lines 47-48. However, Adamec fails to disclose any distinction between the detection of high-energy and low-energy electrons. Furthermore, Adamec fails to teach or suggest directing a trajectory of the produced low-energy

electrons and a second portion of the produced high-energy electrons towards an inner lens detector assembly and detecting directed low-energy electrons and a second portion of high-energy electrons by an inner lens assembly as required by claim 1. Thus, Adamec fails to overcome the deficiencies of Todokoro I.

Ose is cited for providing a trajectory of at least some of the electrons that is substantially coincident with one of the first and second optical axes. However, even if true, Ose fails to overcome the above noted deficiencies of Todokoro I and Adamec.

Thus, for at least these reasons, neither Todokoro I, Adamec, nor Ose, teach or suggest each and every element of amended claim 1. Hence, amended claim 1 is patentable over the cited prior art. Independent claim 13 includes limitations similar to claim 1 and is patentable over the cited prior art for at least the same reasons as claim 1. The remaining claims depend from claim 1 and 13, respectively, and are patentable over the cited prior art at least by virtue of this dependency.

Claims 4, 12, and 21 depend from claims 1 and 13, respectively, and are patentable over Todokoro I, Adamec, and Ose at least by virtue of this dependency. Todokoro II is cited for disclosing the processing of received detection signals to provide an indication about a defect or a process variation wherein detected electrons include electrons from a lower portion of a high aspect ratio hole. However, even if true, Todokoro II still fails to overcome the above noted deficiencies of Todokoro I, Adamec, and Ose and, as such, the combination of Todokoro I, Adamec, Ose, and Todokoro II fails to teach each and every element of claims 4, 12, and 21. Thus, for at least these reasons, claims 4, 12, and 21 are patentable over the cited prior art.

If there are any additional charges, please charge Deposit Account No. 19-3140.

Respectfully submitted,

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